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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/634,522	08/08/2000	Lawrence W. Kimberly	0113022-002	4661

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EXAMINER

WACHTEL, ALEXIS A

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 06/05/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/634,522

Applicant(s)

KIMBERLY, LAWRENCE W.

Examiner

Alexis Wachtel

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 August 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 23-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 28-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

1. Restriction to one of the following inventions is required under 35

U.S.C. 121:

- I. Claims 1-22, 28-33 drawn to a composite laminate, classified in class 428, subclass 402.
- II. Claims 23-27, drawn to a method of making a composite laminate, classified in class 156, subclass various.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, a materially by using a discrete adhesive layer disposed in between said flanking layer and matrix.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Michael Leonard on 05-20-2002, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-22, 28-33. Affirmation of this election must be made by applicant in replying to this Office action. Claims 23-27 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 7,9-12 and 28-33 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,250,136 to Rex.

Rex is directed to composite structures and teaches an improved composite structure made of a syntactic foam core element comprised of hollow spheres imbedded in an organic resin binder (Col 4, lines 14-17). The amorphous or uncured core element is comprised of a mixture of small and large organic (e.g. polystyrene or phenolic) or inorganic (e.g. clay, quartz, glass) hollow spheres having diameters in the range of 10-15000 microns and which micro and macro spheres are substantially uniformly distributed throughout the uncured organic resin matrix. The spheres present in the rigid composite constitute 60% to 80% by volume with the resin being 40% to 20% by volume, or being from about 20 to 50 parts by weight for each 100 parts of resin. Note: the Examiner equates the disclosed spheres to the claimed particles. The resin may be of any suitable organic type such as epoxy, polyester, or vinylester (Col 4, lines 30-45). The composite is made in the form of a sandwich arranged in the following

manner: (1) a first or bottom layer of reinforcing material such as fiberglass in woven or mat form; (2) a first layer of initially resilient and open-cell foam containing a liquid thermosetting resin such as epoxy, polyester, vinylester which is laid over the first reinforcing layer; (3) a second layer of reinforcing material is laid over the first resin containing, open-cell foam layer; (4) a suitable quantity of uncured syntactic foam having a dough-like consistency is placed over the second reinforcing layer; (5) a third reinforcing layer is placed over the uncured and amorphous syntactic foam; (6) a second layer of liquid, resin-containing, open-cell, resilient foam is overlaid on the third reinforcing layer; and (7) a fourth or upper layer of reinforcing material is laid upon the second resin-containing foam layer. The composite sandwich is then placed within a mold and subjected to suitable heat and pressure to cause the uncured sandwich to assume the internal shape of the mold (Col 4, lines 55-68, Col 5, lines 1-10). Examiner notes that (1), (2), (3) and (5),(6), (7) constitute laminates that are in contact with (4). In addition, Examiner notes that (1), (2), (3) and (5),(6), (7) function as "flanking layers" that substantially surround the syntactic foam core (4). The spheres are considered fillers for the continuous resin phase and are used primarily to reduce density and thus lighten the cured continuous resin phase (Col 6, lines 55-58). Spheres of differing sizes are normally mixed with the liquid resin to increase the loading volume and to thereby reduce core element density. In other words, if one were to fill a volume with macro-spheres alone, the loading factor could be in the range 50-60%. However, by adding microspheres which tend to fill the interstices between the macro-spheres, the loading factor can be increase to the

80% range thereby enhancing the lightness of the core element (Col 8, lines 9-18).

***Claim Rejections - 35 USC § 102/103***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 13 and 14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 4,250,136 to Rex.

Although Rex does not explicitly teach the claimed specific gravity, it is reasonable to presume that said limitations are inherent to the invention. Support for said presumption is found in the use of similar materials (i.e. a matrix material having particles dispersed therein in the range from 40 to 85% by volume). The burden is upon the Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594. In the alternative, the claimed specific gravity would obviously have been provided by the process disclosed by Rex. Note *In re Best*, 195

USPQ.433; footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5,6,8,15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,250,136 to Rex in view of US 617,688 B1 to Zheng et al.

Zheng et al is directed to composites and teaches a syntactic foam made with a resin matrix to which has been added hollow spheres of various materials (Col 3, lines 17-19). The composite makes use of glass microspheres and polymer microspheres, wherein said glass microspheres are larger than the polymer microspheres (Col 3, lines 44-45). The polymer microspheres fill in the interstices between the glass microspheres so that discontinuities in the composite material are reduced or eliminated, and the strength increases. Further, the polymer microspheres cushion the glass microspheres to prevent them from breaking. In view of this teaching, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have employed the polymer and glass microspheres of Zheng et al in place of the micro and macro spheres of Rex's composite, motivated by the desire to increase the strength of Rex's composite material. Examiner notes that the limitations of claim

8 are satisfied on using the microspheres of Zheng et al in Rex's composite, since, as cited above, the polymer microspheres cushion the glass microspheres from breaking, which Examiner takes to mean as microspheres in contact with each other.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Alex Wachtel, whose number is (703)-306-0320. The Examiner can normally be reached Mondays-Fridays from 10:30am to 6:30pm.

If attempts to reach the Examiner by telephone are unsuccessful and the matter is urgent, the Examiner's supervisor, Mr. Terrel Morris, can be reached at (703) 308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



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